MA 106-01 (CRN-10248): Trigonometry—Winter 2019

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Office: JXJ2227 Office Hours: MW 5:00-5:45, 7:15-8:00, or by appointment
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Textbook

The required textbook we will use for this course is *Trigonometry, 11th Edition* by M. Lial, J. Hornsby, and D. Schneider. The text is available in the University Bookstore.

Prerequisites

Prerequisite: MA 103 or MA 104 (C- or better) or a satisfactory score on the Math Placement Exam. A graphing calculator is **highly recommended** (TI-84+ works well). MA 106 is for students who need trigonometry but **not** analytic geometry and calculus**. Credit cannot be earned for both MA106 and MA 115, except by written permission from the Mathematics Department.** This course is designed to be a terminal math course, with emphasis on applications in the applied sciences. ***Students who are considering taking MA 161 should take MA 115 instead.***

Class

Class will be held, unless otherwise noted, at the following days and times:

- ***Monday and Wednesday from 6:00-7:15 p.m. in WS 3803***

Your daily attendance is **expected**. I will record attendance for each class period we are in session. **While in class you will be expected to pay attention, participate in class discussions and not use any other electronic devices other than a laptop for notes. So please keep your cell phone off. IF you miss *3 or fewer days*, then I will substitute an 85% for a lower test score (not the exam and not a quiz).**

Course Description

Fundamental concepts used throughout the course will be learned and reviewed in the first 2 weeks. It is very important to have a thorough understanding of the fundamentals. We will cover topics from the first 7 chapters of the textbook, but not necessarily in order. A list of the topics covered during the semester is given below. The schedule and content may be modified as needed.

- Geometric concepts used in Trigonometry
- Trigonometric Functions
- Acute angles and Right Triangles
- Law of Sines and Law of Cosines
- Applications of Trigonometry and Vectors
- Radian Measure, The Unit Circle, Graphs of the Trig functions
- Inverse Trig functions
- Trigonometric Equations
- Trigonometric Identities

Learning Objectives

Upon successful completion of this course, students will be proficient in the following areas:

- Recognize and apply fundamental geometric concepts to construct diagrams used to solve application problems involving trigonometric functions.
- Use trigonometric functions of right triangles to solve problems given a set of criteria.
- Recognize and apply trigonometric identities to find values for trigonometric functions.
- Solve for missing angles or sides of triangles using trigonometric functions, Law of Sines or Law of Cosines.
- Apply trigonometric area calculations for triangles when applicable.
- Convert between radian and degree measures.
- Choose appropriate unit of measure when solving application problems related to circular functions, and if necessary convert answers.
- Graph trigonometric functions over at least one period interval so that the graph reflects all zeros, minimums, maximums, asymptotes, and transformations, as applicable.
- Apply inverse trigonometric functions when necessary.
- Solve trigonometric equations within a specified interval and recognize extraneous solutions, if present.
- Verify trigonometric identities using fundamental algebraic concepts.
- Apply vectors and vector diagrams to solve application problems.
    - ***Objectives are measured by quizzes, tests and the final exam.***

Grading and Grading Scale

- Homework 10% Quizzes/Tests 60% Final Exam 30%
- 94-100 A 90-93 A- 87-89 B+ 83-86 B 80-82 B- 77-79 C+
  73-76 C 70-72 C- 67-69 D+ 63-66 D 60-62 D- <59 F

Homework

All homework assignments should be completed to gain understanding of concepts discussed in class. Effort on daily homework is essential to the understanding of material, especially in a math course. Please complete your assignments in **pencil,** so changes can be made if needed. Show **all** necessary work in a neat, organized manner and include any diagrams that accompany the problem. Knowing how to get the correct answer is equally important as the answer itself**. Homework problems that are listed on Educat can be turned in for at most 5 points Extra Credit on your test.** Periodically throughout the semester I assign worksheets related to the material being covered. If you are absent on the day a worksheet is given, there will be extra copies by my office door. **Most** worksheets are collected and graded.

Quizzes/Tests

Quizzes may be given during a chapter, depending on the material being covered. Usually though, a test at the end of a chapter is more likely. You will know well in advance when quizzes and tests are going to be given. I will use *Educat* as a means to post assignments, quizzes and tests, but will also do so during class. **All tests MUST be done in pencil.**

All quizzes and tests must be taken when scheduled. Exceptions will only be accepted in case of an unavoidable conflict and will need to be approved in advance. General notes and formulas may be used on all tests.

*FINAL Exam—According to the NMU Exam Schedule (Normally the Monday of Exam Week @ 6:00 p.m.: April 29, 2019)

NOTE: I will make an attempt to develop calendars of topics and assignments so you are aware of everything well in advance, but keep in mind it will be subject to change if needed. ***Calendars can be found on Educat.***

NOTE: Last day to drop a course with a "W" is Friday, March 29th @ 5:00 p.m.

Calculators

Calculators are allowed on all homework, quizzes, tests, and the exam. TI-84+ graphing calculators work very well for this course. An inexpensive TI-30XS Multi-View scientific calculator will also be helpful for working with radicals.

Electronic Devices

In order to promote a positive classroom experience, I request that you **DO NOT** use any other electronic devices during class, except your laptop computer for note taking or a calculator. **Please make sure that your phone is either off or on silent mode, and refrain from using it during class.**

Natural Sciences Requirement

This course satisfies the Foundation of Natural Sciences/Mathematics requirement. Students who complete this course should be able to demonstrate a basic understanding of mathematical logic; use mathematics to solve scientific or mathematical problems in college classes; express relationships in the symbolic language of mathematics; and appreciate the role of mathematics in analyzing natural phenomena.

University Policies

- Academic Honesty: Cheating is not only unethical and pathetic, but is a violation of the Northern Michigan University Student Code and University Policies and grounds for dismissal from the University.
- Discrimination and Harassment: Northern Michigan University does not unlawfully discriminate on the basis of race, color, religion, national origin, gender, age, height, weight, marital status, handicap/disability, sexual orientation or veteran status. If you have a civil rights inquiry, contact the Affirmative Action Office at 906-227-2420.
- Americans with Disabilities Act Statement: If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Dean of Students Office at 2001 C. B. Hedgcock Building (227-1700). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.
- The Registrar: Withdrawing from any course, or any matters related to registration are the responsibility of the student. For more information regarding this topic, go to the Registrar's Website.